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July 12, 1991

Mr. Ronald D. Hauber
Assistant Director
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Office of Governmental and Public Affairs
United States Nuclear Regulatory Commission
Washington, DC 20555

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U.S. NRC

RE: Export License Application - Safari-1 Research Reactor
(Republic of South Africa)

Dear Mr. Hauber:

Enclosed is our application for a license to export nuclear instrumentation and control components to the Safari-1 Research Reactor in the Republic of South Africa. The following information supplements that on the application and may be useful during your review:

Safeguards Agreements

The Safari-1 reactor was acquired from Allis Chalmers in the United States under a trilateral agreement among the governments of the United States and South Africa and the International Atomic Energy Agency (IAEA). The reactor has always been under IAEA safeguards, as required by the trilateral agreement.

Design and Operation

The Safari-1 reactor design is a close copy of the Oak Ridge Research Reactor (ORR), which is now shut down. In the past it has been used primarily for neutron beam research, materials testing, activation analysis, and isotope production. According to the Atomic Energy Corporation of South Africa, its future use will continue along these lines, with perhaps more emphasis on isotope production. I enclose a copy of the information on the Safari-1 reactor published in 1989 by the IAEA in their Directory of Nuclear Research Reactors.

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Equipment to be Exported

The first equipment to be exported will be five neutron flux monitoring instrument and control channels (four plus a spare), each comprising:

- A Detector Assembly with 1.3 grams enriched U^{235} in a sealed fission chamber sensing element. (If the Atomic Energy Corporation chooses an alternative of ion chamber detectors, then no Special Nuclear Material will be exported. However, it is more likely that fission chambers will be chosen, and thus we include them in the application.)
- An Amplifier Assembly
- A Signal Processor Assembly, including bistable trip logic that connects to the existing rod control logic
- Junction Boxes and Cable Assemblies that connect each detector to its amplifier (four channels only)

One set of documentation and instruction manuals will also be supplied for the above channels. Also, selected electronic sub-assemblies will be supplied as spare parts.

These channels will replace existing Log-Linear Control Channels that were supplied by another U.S. company in the 1970s. We anticipate that additional components of the Reactor Instrumentation and Control System may be exported in the near future to replace existing components (for example, temperature monitoring, rod control logic, rod positioning controls, operator displays, etc.), and we ask that these components also be included in this export license.

Thank you for your efforts in reviewing this application. Please contact me if you need additional information.

Sincerely,

GAMMA-METRICS

H. Gordon Shugars

H. Gordon Shugars
Product Manager
Reactor Instrumentation

Enclosures